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Round Table Discussion of an
Advisory Group of INTIB Users

Vienna, Austria, 23-27 September 1985

REPORT*

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INTRODUCTION

1. A Round-Table Discussion of an Advisory Group of INTIB*/ Users was organized by the UNIDO secretariat at Vienna, Austria, from 23 to 27 September 1985. The agenda, list of participants and the list of documents are in Annexes I, II and III.

2. INTIB was set up with the aim of facilitating and accelerating a greater flow of information to developing countries for the proper selection of technology. It started as a pilot activity in 1977 in four industrial sectors. Its results were received by the Industrial Development Board of UNIDO in 1979 and its operation was extended to twenty industrial sectors. The advisory group of INTIB users was brought together to review its activities and recommend the directions of its future work. The objectives of the discussion were to exchange experiences on national industrial and technological information activities, particularly on information generation, collection, processing, evaluation, analysis and dissemination; to seek ways and means to get access to information sources for the information needed by the INTIB users; to review the present INTIB activities, including the method of generating information and of reaching the needed information to the users by INTIB services; and to recommend an appropriate course of action by INTIB in future.

3. Opening the meeting, the Director-General of UNIDO, Mr. Domingo L. Siazon, Jr., pointed out that a review of INTIB activities was timely on account of the exponential growth in information, the rapid advances in information handling and telecommunications, and the growth and diversity of industrialization in developing countries. It was also opportune in view of the impending conversion of UNIDO as a specialized agency. The situation was that the availability of information in the world was increasing exponentially but effective decision-making in several developing countries was still hampered by the lack of capabilities to

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*/ The Industrial and Technological Information Bank

evaluate and use the information. He called for greater attention by INTIB to the needs of countries at an initial stage of development; to small and medium enterprises and village and rural industries; and to human resource development. The pursuit of efficiency and effectiveness of INTIB activities should continue in a spirit of innovation and reexamination.

4. The Director, Division for Industrial Studies, UNIDO, highlighted the salient aspects of INTIB's work and the considerations that should govern its work in future. While INTIB worked as a catalyst of national information institutions, it was not a substitute for them. He underlined the importance of strengthening national information activities.

5. The meeting elected Mr. Adam Wysocki, Poland, as Chairman and Mr. Edward M. Ngaiza, Tanzania, as Rapporteur.

6. The report of the meeting was adopted on 27 September 1985.

I. CONCLUSIONS AND RECOMMENDATIONS

Trends in Information Collection, Processing and Dissemination

7. The Advisory Group considered it necessary to take into account in UNIDO programmes and plans the revolutionary technological changes occurring in information processing and communications and their impact on information systems and facilities both in developed and developing countries.

8. The Group drew attention to the growing importance of the new information technology in industrial information transfer to and from developing countries. It, however, also emphasized that non-computerized information and facilities would, for the foreseeable future, continue to be required and to be essential for the supply and dissemination of various types of technological information. The use of non-computerized facilities would be all the more necessary for the promotion of the demand for information.

Industrial and technological information users' needs

9. The Advisory Group considered that INTIB had a responsibility of strengthening national industrial and technological information centres so that they could serve all categories of users. In the assistance package both hardware and software were essential. National centres should be systematic in handling various types of information and link it to relevant users.

10. The Group felt that national level information centres should cater to various categories of users. In areas where communication technology was backward, other alternative methods like seminars, inplant teaching sessions and person to person information exchange methods should be used to transmit industrial and technological information. The importance of the human element was stressed, particularly in regard to the provision of information to small industries and irrespective of the growing automation of information handling and dissemination.

11. The Group emphasized the importance of manpower training which should become a regular feature because of rapid changes in information handling techniques. A practical approach should be adopted in training programmes.

12. The Advisory Group noted, that users' needs for industrial and technological information were many, yet their effective demand is relatively low, especially in developing countries. INTIB could work with intermediaries to educate users on their real needs. The generation of such awareness will stimulate users' demand for useful and relevant information.

13. The Group agreed that users' needs of industrial and technological information should be viewed in relation to and be linked with actual technology transfer. When users know that they could get useful information that would eventually lead them to acquisition of technology, hardware or management skills, then the demand for such information would increase. INTIB should disseminate information that leads to real technology transfer.

The role and the future of INTIB

14. The group agreed on the particular usefulness of INTIB to developing countries and noted with satisfaction that in a recent survey conducted among users in developing countries, INTIB was among the first ten information services they found useful. The group emphasized, however, that, if INTIB's usefulness was to be sustained and enhanced, its activities must be expanded and reoriented. That was for a number of compelling reasons, such as the technological change taking place in the world, the growth and diversity of information and its accelerated flow thanks to developments in telecommunications and the changing needs for industrial and technological information. The expansion and reorientation should not entail INTIB's competition with or duplication of other systems and services both public and private. INTIB should retain its distinguishing features, particularly to promote the accelerated flow of processed information to facilitate technology selection. It must make a smooth transition from its present position to a future set-up which would be generally consistent with the developments in this decade in information handling and processing techniques. The group felt that such an information activity should be one of the essential activities of UNIDO.

15. The improvement and reorientation of INTIB will require both short and long-term measures and also an introduction of new concepts and approaches. In this regard attention should be given both to the internal functioning of INTIB and its interaction with the other parts of UNIDO and to measures which would contribute to the improvement of the external information environment, particularly in developing countries, so as to improve INTIB's effectiveness. In this respect the group emphasized that for INTIB to enhance its usefulness in developing countries it must contribute to the strengthening of national capabilities in information handling, processing, dissemination and use of industrial information in developing countries and also promote the flow of relevant information for that purpose.

16. The group recommended that with the foregoing general considerations in view, a medium-term programme for INTIB of say five years may be drawn up and implemented by UNIDO so as to enable INTIB to

make an orderly transition to a more effective activity which would keep in step with developments in information technology and meet the requirements of the developing countries in future. The group identified certain major key elements, listed below, which should go into the development and implementation of such a medium-term programme.

17. The INTIB may emphasize its function as a network to a greater extent in its future activities to meet the growing and diversifying needs of industrial and technological information, and to improve the coverage, comprehensiveness and relevance of information to be made available to the end-user. Hence, the concept of INTIB nodes in developing countries should be introduced and implemented systematically. Specialized "centres of excellence" in developing countries must also be included in the network. Such a networking activity would have other benefits such as:

(a) Stimulating the establishment of local industrial and technological information capabilities and assisting in the improvement of the information structure in developing countries;

(b) Making possible the physical sharing and transfer of resources through the network and increasing the availability of information to all users;

(c) The network might and probably should facilitate the introduction of new information technology - computers and telecommunications - to the organizations participating in the network.

18. With the installation of computer and telecommunication facilities as network links, the INTIB network could further evolve as an on-line network which could consist of data base providers or producers, data base vendors or operators, data base carriers and data base users.

19. In order to promote the flow of industrial information, particularly in the developing countries, it is desirable and even indispensable for INTIB to develop an overall international industrial

information activity of UNIDO as the United Nations Agency responsible for industrial development. It should take into account on-going international efforts including those related to the establishment of a global information network. The content of such a programme could include industrial information policy, development of industrial information capabilities in developing countries and the development of an INTIB network. An important component of the programme, which should fully recognize the human factor in information transfer, should be training and education of information specialists and users and also workshops for information policy-makers. The programme should also promote links with financial institutions and the dissemination of industrial information in local languages.

20. In regard to the internal functioning of INTIB, several measures should be undertaken in a medium-term framework such as:

(a) To aggregate or interlink UNIDO's information activities with INTIB as the hub of such activities;

(b) To introduce the technique of computer conferencing initially with sources of information including individual scientists and technologists and later to expand it with developing country recipients of information wherever possible;

(c) To generate and promote information dissemination by video tapes as an increasingly useful means of transmitting information;

(d) To install adequate data processing and on-line facilities for INTIB for access to and, where necessary, storage of information.

21. The group noted that the resolutions of the Fourth General Conference of UNIDO besides calling for the strengthening of INTIB activities, recommended a greater role for INTIB in the dissemination of industrial information on energy-related technologies and of information that would enhance co-operation among developing countries. The

Constitution of UNIDO also assigns UNIDO a specific function to serve as a clearing house of information. These important considerations should be fully taken into account in developing a medium-term programme.

22. Alongside of the development of the medium-term programme several short-term measures to further improve INTIB could be undertaken. Such measures would include:*/

(a) To make the services of INTIB more known in all developing countries;

(b) To make developing countries better aware of the importance of the international information available and the means of accessing and processing such information;

(c) To intensify co-operation with the agencies in the United Nations system in the field of information. INTIB should play an important role in the global information system being developed. The co-operation with ILO in the preparation of technical memoranda was noted as a good example of inter-agency co-operation;

(d) A monitoring and follow-up system should be established so as to evaluate the actual use of information provided by INTIB and to ascertain information needs;

(e) To ascertain the needs of major clients, such as enterprises and to encourage their use of INTIB;

(f) To promote and encourage information intermediaries and also the links between information and decision-making;

(g) To network with retired engineers/consulting engineers as sources of information.

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* Please see chapter IV for additional suggestions.

23. The group noted that responses to inquiries were generally made by INTIB by seamail and, occasionally by airmail. It emphasized the need for transmission of information very quickly for such information to be useful. The benefits of such speedy transmission of information would be more than commensurate with the extra cost to UNIDO.

24. The group strongly recommended that the staff and financial resources available to INTIB should be substantially increased so that a meaningful medium-term programme could be implemented. It noted the resources currently available to INTIB were very limited in comparison with similar information systems and services. An effective role of INTIB in the changing context of modern trends in information communication, delivery and use would be possible only with increased resources.

25. UNIDO should provide support to the developing countries for the establishment or strengthening of their national industrial information systems and services through the provision of consultancy services, technical assistance, specialized training programmes, promotional measures and other appropriate means. The setting-up and strengthening of national information systems and networks should form the major activity in the process of the development of a global information network of the United Nations.

26. The meeting agreed that UNIDO/INTIB's information activity should be considered as an essential element of the global information network recommended by the Vienna Programme of Action. The future development of INTIB would in this respect be closely linked and co-ordinated with the overall United Nations efforts in the field of scientific and technological information.

27. The group recommended that in order to meet these goals UNIDO would support national efforts in the area of industrial information which represent the basic requirement upon which any network might be built.

II. DEMAND AND TRENDS OF INDUSTRIAL AND TECHNOLOGICAL INFORMATION IN DEVELOPED AND DEVELOPING COUNTRIES

28. Nine papers were presented to the Group covering the demand and trends of industrial and technological information in developed and developing countries, recent developments in industrial information processing including hardware and software development, trends in communication systems and alternative means of information dissemination. The relevant experiences of the Arab region, Hungary and China were also presented. The salient trends brought out in the presentations are indicated briefly below.

29. A new perspective on information technology is emerging as a result of developments in computer, materials and telecommunications technologies and their national and international diffusion. Two technologies can be singled out as the driving forces behind the information revolution in the developed countries, namely the satellite and the semi-conductor chip. Underlying the rapid worldwide thrust towards digital communications and lower-cost computing, is the dramatic and continuing decline in the cost of semiconductor technology, which is based on the 'Chip'.

30. The Group emphasized that society is entering an area known as the information age or knowledge society in which knowledge and technical information are playing an essential and predominant role. Ninety per cent of all accumulated knowledge has been produced in the last decade. In the past, emphasis was given to funds and equipment as essential elements for socio-economic development and the importance of technical and industrial information ignored. This situation must be radically changed and information should find its right place as a productive force of society.

31. Technical information available today is so vast that the success of an industrial firm depends first on its ability to receive the vital information in time. Information has come to be realized as an important

commodity in production along with men, material, money, machinery and methods. The basic problem in the successful application of information is the identification of appropriate information requirements. The information needs of entrepreneurs are crucial to their business. Any industrial information system is likely to be engaged in processing operations that have one or more of these charactersitics viz: (i) a large volume of input data; (ii) repetitive tasks; (iii) the need for speed in processing and retrieval; (iv) the need for a high degree of accuracy; (v) processing complexity or complex manipulation of data; and (vi) information exchange. These characteristics of industrial information systems would encourage the use of computers and microprocessors.

32. Though there has been considerable progress in informatics in the advanced countries, many developing countries have a long way to go to improve their industrial and technological information systems. Though some countries have well defined policies regarding information on industrial and technological developments and possess satisfactory institutional and other facilities for information processing, they have no institutional co-ordination in collection of information on national and global basis. Some developing countries have information systems and facilities only in certain selected sectors of industry and economy. The third group of developing countries have barely any information activities on science, technology and industry or, wherever these exist, they are only at the bibliographical stage. Generally, most of the developing countries have no national information policy and do not network information services at the national and global levels.

33. Details of various measures which could perhaps be taken by the developing countries with the co-operation of UNIDO/INTIB were discussed. Looking at the future and in order to derive maximum benefits from the modern information systems, the adoption of modern information technologies is essential even though the pace of adoption will vary with a country's infrastructure and requirements. Increased flow of information from external sources and access to such sources is

necessary. Since technological information in the industrialized countries will increasingly be available in machine-readable format, its effective utilization in developing countries will depend on the extent to which such format is utilized and also on the selection and preparation of suitable inputs and optimal usage of the outputs from such facilities. Most important, however, is training of personnel to utilize and derive maximum benefits from modern methods of computer-oriented information, its storage, dissemination and retrieval based on electronic data processing systems. At the same time non-computerized methods of information handling continue to be important particularly in countries at an initial stage of development. So also is the importance of the human factor and person-to-person communication.

34. The options to convey information to industry can be basically divided into two groups, whether or not they include the direct intervention of a human interface, the "Industrial Information Officer". Services operating through Information Officers (Extension Services) are considered as the best adapted to the actual information needs of small and medium-sized industry. Information officers have a double role: to solve information problems and to create a favourable climate for innovation in industry. Where no industrial extension service exists, information centres have to fill the gap, by adapting their services to the real needs of the users. Close contact of the user with the staff of the information centre is required and the staff play, to a certain extent, the role of Liaison Officers.

35. The major kinds of the traditional information services are: referral services; current awareness services; industrial inquiry services; extension services; and technological information profiles. All the mentioned services have a justification to exist, more precisely, to co-exist.

36. To achieve better effectiveness in the transfer of information, the existence of an information service <u>within</u> the firms is extremely desirable.

37. The Group also heard presentations on some new network concepts. The IBINET project based on high technologies but using conventional telecommunications satellites is considered to be an interesting option particularly to the countries without appropriate (in quality or extension) terrestrial telephone or telex infrastructures. This kind of technology offers them the possibility of access to international information providers and the opportunity to create and develop their own data transmission networks by a low-cost point-to-multipoint unidirectional selective data distribution network by satellite.

38. A step towards a European infrastructure for technology transfer is being taken through a pilot project on the establishment of a community-wide infrastructure for technology transfer by means of a telefax-network between the most important technology transfer centres in the EEC. As a result a telefax-network with 28 telefax terminals was set up. It has been possible to adapt the equipment to the different communication systems in the different European countries (different telephone signals, line voltage etc.) and to get the approval from the PTT's. EEC has decided to support an enlargement of the network and the setting-up of a dictionary of telefax-users working with technology transfer. The experiences from this project and from the total EEC programme in the information area is relevant in setting-up new networks, databases and information systems.

39. In its discussions the Group emphasized that the development of national information systems and greater national capability in handling, processing and disseminating industrial and technological information are a prerequisite for rapid technological growth in developing countries. It is also essential to increase the capability of the users of information both to define the nature of their information requirements and to use effectively the industrial and technological information that was or could be made available. In this regard the Advisory Group was of the view that much greater attention needed to be given to the demand (expressed need) side of industrial and technological information in developing countries. This would require increased activation of the information users and the creation of an environment in which

technological information would be required and utilized to a far greater extent than was currently the case. The activation of demand and of the effective use of industrial and technological information might have to be tackled through various promotional measures, as well as through appropriate education and training programmes.

40. It was noted that the technological progress in the field of informatics had largely taken place in developed countries, where apart from major innovations in computers, micro-processors and communications facilities, there had been rapid growth of commercial information - processing facilites and services. The Advisory Group considered it necessary to take into account the impact of such developments on information systems and facilities in developing countries.

41. Transborder data flows were also increasing rapidly. In most developing countries, however, information facilities continued to be centred around libraries, documentation centres, universities and research institutions using traditional systems and means of communication with limited use of computers and computerized data processing.

42. The rapid growth of electronics media and technological developments in information handling and processing raise important policy issues for information systems in developing countries.

43. It was stressed that modern technological development only provided sophisticated tools and mechanisms, but their effective utilization would largely depend on the selection and preparation of suitable inputs and appropriate use of the outputs from such facilities. Such technological facilities should complement traditional systems of industrial and technological information collection and dissemination in those countries. While communication through satellites was desirable and even necessary, the receiving end would also need to be suitably geared to the requirements of information processing. The training of industrial information specialists to handle, store and retrieve information was

therefore important. Another important aspect would be the development of standardization so that information could be shared to the maximum extent.

44. Through the new technological developments greater efficiency could undoubtedly be achieved in information handling and processing, including search and document delivery. Nevertheless non-computerized information and facilities would continue to be required and be essential for the supply and dissemination of various types of technological information. The use of non-computerized facilities would be all the more necessary for the promotion of the demand for information, particularly from small and village industries.

III. INDUSTRIAL AND TECHNOLOGICAL INFORMATION USERS' NEEDS

45. Presentations were made analysing different categories of industrial and technological information users' needs as well as sectoral information needs. The following were the salient points made in the presentations.

46. Most developing countries have investment programmes for socio-economic development. Such programmes are executed by the government or governmental agencies; R and D institutes, private enterprises, development financing institutes, etc. Development projects executed by the above organizations need a range of technological information for the evaluation and selection of the proposed development projects. The more productive the development projects, the greater the role of technological information.

47. Industrial information is very broad in scope. It not only concerns technological or technical information but also information required for industrial development, such as market information, socio-economic data etc. Ultimate users of industrial and technological information are mostly entrepreneurs, industrial planners and policy-makers at both the macro- and micro-levels. In advanced countries, the ultimate users in general know what information they need, and how to go about getting it. On the other hand, in developing countries, in general, users are less capable of defining their problems, searching for them and then benefitting from them. Hence, the need for the existence of "intermediaries" to assist in those functions, and to act as a link with ultimate users. Without such links the needs for information as estimated in planning and establishing technological information systems, far exceed the much smaller "effective" demand, and even the still much smaller real benefit from information in actual decision-making. This calls for the careful building-up of the intermediary capacity. With the expanding and continuously developing international mechanisms of information using sophisticated equipment and modern telecommunication facilities, intermediaries in developing countries would have to be well

informed of such international systems and also of the local needs, which generate effective demand for and application of technological information. The group noted in this connection some of the developments in China such as information consultation services and part-time information personnel.

48. In the agriculture industry sector, the users range from large farm machinery, implements manufacturers to small-scale units and artisans. Other categories include users of agricultural machinery, units servicing agricultural machinery, research institut'on, planners and government policy-makers. In the food processing sectors the categories ranged from manufacturers of various food products to users and their protection groups. The general information needs in these areas relate to raw materials, plants and machinery, financing, management information and appropriate technology.

49. R and D institutes, development financing institutes, etc., in the developing countries should have a new concept and strategy on technological information and an appropriate information management system. One of the urgent strategies would be the fostering of specialists and the industrialization of information systems.

50. In the discussions several observations were made by participants. Some of the points raised were:

(a) There is an urgent need to develop and strengthen national information centres because the national entrepreneurs and small and medium industries are better placed to contact national centres than INTIB for information.

(b) There is a need to make a survey of the category of users and quantify their requirements so that delivery of industrial and technological information could match the requirements. For example, the information needs of educational institutions preparing students for industry are different from those of industrial managers.

(c) There is a need to involve information users while setting up an information system. The users can be selected from different categories.

(d) Some users of industrial information centres do not know their needs. Therefore, INTIB and national information centres should assist users to get what they want and help potential users to articulate their needs.

IV. REVIEW OF CURRENT INTIB ACTIVITIES

51. The secretariat presented a short historical background of INTIB, including its objectives and functions. It also presented the current INTIB activities, including a brief anatomy of INTIB Industrial Inquiry Service, in terms of analysis of its users in different regions, characteristics of the inquiries, the major sectors of concentration as well as linkage and communication of INTIB with national and regional industrial/technological information networks.

52. INTIB provided processed information to roughly 1,300 inquiries every year. In addition, information by way of documentation was being supplied to over 10,000 requestors, the number of such documents exceeding 100,000 per year. In regard to inquiries for processed information enterprises from developing countries accounted for roughly 30 per cent. Two thirds of the inquiries originated from enterprises, technical information centres, international organizations and R and D institutions. In the past few years roughly 70 per cent of the inquiries related to the sectors of industrial chemicals, petrochemicals, pharmaceuticals; agro industries and food processing; capital goods and fabricated metal products. In roughly three-fourths of the cases the inquiries related to information on manufacturing processes and know-know and equipment and machinery suppliers. Among the regions from which the inquiries emanated, Africa accounted for 23 per cent, Asia and the Pacific for 21 per cent and Latin America and the Caribbean for some 20 per cent. Altogether, inquiries were usually received from over 100 countries. The distribution of inquiries among countries varied significantly depending on the activities of the national information centres and the stage of industrial development reached.

53. INTIB operated as the major provider of industrial and technological information in UNIDO and was complemented by other UNIDO activities, such as INDIS, LINK, TIES, INPRIS etc. Through the VIC library INTIB had access to nearly 280 data bases. It also had a network of some 300 correspondents including correspondents from developing countries. Recently special steps had been taken to identify nodes at

the level of countries and some 125 nodes had been identified from 55 countries. The nodes were mainly R and D institutes, information services and centres and industrial associations. The major coverage of the nodes related to agro industries, capital goods and industrial chemicals.

54. In addition to provision of replies to inquiries and documentation to requestors, INTIB also produced technological information profiles, information packages and technical memoranda (in co-operation with ILO) and a series on "How to Start Manufacturing Industries". Directories of information systems and services in developing countries as well as of research institutes in several sectors had been produced. These and other functions of INTIB together provided a set of interrelated activities to respond to the information needs of developing countries.

55. Attention was also drawn to the world-wide context of economic development, the efforts in the United Nations system in scientific and technological information and the trends in new information technology. The role of information in technology transfer was highlighted in regard to diagnosis of problems, design of problem solution strategy, acquisition of information, analysis of information, adaptation and application of information.

56. The group underlined that UNIDO should take into account the various information needs in developing countries and in meeting them give priority to countries which do not have industrial information capabilities; pay special attention to the formulation of national industrial information policies, and help establish and develop national information infrastructure and networks. Local industrial information services could substantially contribute to the self-reliance of the developing countries by providing inputs to the organization and management of their industrial and agricultural production.

57. Several suggestions were made concerning methods of functioning of INTIB, such as

- modalities of providing assistance to developing countries for establishment of industrial information centres;

- methods of acquisition of new technologies by developing countries;

- information policies;

- monitoring information relating to the impact of new technologies on industrial sectors;

- needs for providing guidelines for establishment and development of industrial information services; and

- role of patent information and co-operation with INPADOC and WIPO.

58. The Advisory Group recommended the following:

- INTIB should link directly with external data bases.

- Create more inputs to INTIB LINK (the On-Line-Information-Key) data base, based on INTIB users' priorities and needs.

- INTIB should link and co-ordinate in-house data bases in order to serve better the INTIB users.

- Attempts should be made to experiment with PACSAT project of VITA, USA, utilizing low-cost communications satellite system for the INTIB Industrial Inquiry Service so as to improve information delivery time to INTIB end-users; with the project of EEC telefax network for technology transfer so as to identify technology suppliers; and with the IBINET project so as to improve communication between INTIB and its users.

- An INTIB bulletin should be published containing information on resources sought by and available to entrepreneurs in developing countries so as to promote industrial opportunities; the activities of INTIB nodes; and development/experiences in information handling etc.

- INTIB should continue and expand the INTIB Industrial Inquiry Service, utilizing more effectively the INTIB nodes.

- Access to information sources of the technologies which are in the public domain, such as expired patents, should be explored.

- More in-depth analysis of INTIB's past experiences should be carried out so as to enhance INTIB programmes.

59. The Advisory Group also had the opportunity to discuss further INTIB links with regional and national technological information systems and services in detail. The meeting strongly believed that the expansion as well as strengthening of INTIB network of suppliers of industrial and technological information, and link with INTIB nodes in developing countries (such as industrial and technological information service organizations, chambers of commerce, federation of industries, association of small and medium industries, national productivity centres, R&D institutes, engineering and consulting firms, development banks, technology transfer promotion agents, corporations for commercialization of research results etc.) would greatly accelerate industrial and technological information flow to INTIB users. The INTIB network should also encompass sub-regional and regional INTIB nodes and specialized centres of excellence.

60. For effective transfer of industrial/technological information for end-users, there is a need for trained manpower for INTIB nodes for which special assistance should be given. INTIB nodes should establish close links with small and medium enterprises.

61. The meeting recommended that INTIB equip itself to play a more active role in the promotion of increased flow of industrial/technological information by strengthening its network with suppliers of industrial/technological information.

62. The meeting noted the effort taken by INTIB to establish a network among industrial development finance institutions for exchanging vital and relevant industrial/technological information for project appraisal. It recommended that those efforts should be intensified.

63. The meeting emphasized the importance of continuing interaction with INTIB users and suggested holding of similar meetings of Advisory Group discussions on a regular basis so as to keep INTIB activities under review and advise on further improvement of INTIB's work.

64. The meeting discussed the future role of INTIB. The result of its discussions is reflected in Chapter I 'Conclusions and Recommendations'.

V. INTIB's Future Work Programme

65. The group emphasized that the society is entering a stage known as information age or knowledge society in which knowledge and scientific and technical information are playing an essential and predominant role in socio-economic development. It has been stressed that 90% of all accumulated knowledge has been produced in the last decade. This fact creates a new challenge not only for the United Nations system but for the entire society as well. In the past UN agencies in general gave only full recognition to funds and equipment as essential elements for socio-economic development, and ignored the importance of scientific technical and industrial information. This situation must be radically changed and the role of information should find its right place in UNIDO's programme to play the role of a productive force in our society.

66. The group discussed the present functions of INTIB and the role INTIB may play within the global information network proposed by UNCSTD, as well as the redesigning of INTIB as an industrial information network and the possibility of setting up of an international industrial information programme.

67. The group underlined that UNIDO should:

(a) take into account the various information needs in developing countries and in meeting them give priority to countries which do not have any industrial information capabilities;

(b) pay special attention to the formulation of national industrial information policies and to the establishment and development of national information infrastructures and networks.

68. It was stressed that the local industrial information services could substantially contribute to the self-reliance of developing countries by providing appropriate input to the organization management of their industrial and agricultural production.

69. In the discussion it was suggested that the name of INTIB as a "bank" might be changed in the future in order to avoid misunderstanding and misinterpretation which exist in several countries.

70. The group suggested the need of setting up a plan of action and appropriate budgeting for the proposed redesigning of INTIB, underlining that the existing staff and resources are insufficient to meet the envisaged changes.

71. Several concrete suggestions for inclusion in the future programme were made, such as:

- modalities of providing assistance to developing countries for establishment of industrial information centres;
- methods of acquisition of new technologies by developing countries;
- information policies;
- needs for monitoring information development;
- needs for providing guidelines for establishment and development of industrial information services;
- role of patent information.

Annex I

AGENDA

1. Opening of the Meeting

2. Introductory remarks by UNIDO Secretariat

3. Election of Officers

4. Adoption of the Agenda

5. Presentation of

   Theme I: Challenge and Trends of Industrial and Technological Information in Developed and Developing Countries

6. Discussion

7. Presentation of

   Theme II: Current INTIB Activities

   Theme III: INTIB Links with Regional and National Technological Information Systems and Services

8. Discussion

9. Presentation of

   Theme IV: Recent Developments of Industrial Information Processing including Hardware Development Trends and Development of Communication System

10. Discussion

11. Presentation of

Theme V: Alternative Means of Information Dissemination such as Industrial Inquiry Service, Technological Information Profiles, Extension Services, Referral Service and Current Awareness Service

12. Discussion

13. Video Film Show

New Technology in Small Enterprises

The Most Important Power

14. Presentation of

Theme VI: Analysis of Different Categories of Industrial and Technological Information as well as Sectoral Information Needs

15. Discussion

16. Presentation of

Theme VII: Role of INTIB in a Global Science and Technology Information Network

Theme VIII: INTIB's Future Work Programme

17. Demonstration of On-line Information Retrieval by representatives of: IIASA, INPADOC, INPRIS

18. Adoption of the Report

19. Conclusions of the Meeting

Annex II

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Annex III

LIST OF DOCUMENTS

ID/WG. 450/1	Linking ultimate users of industrial information to sources of supply by I.H. Abdel Rahman
ID/WG. 450/2	The development of industrial information systems in the Arab region - A review of past experiences, needs and trends by O.A. El-Kholy
ID/WG. 450/3	The demand and trends of industrial and technological information in China by Rui Guozhang
ID/WG. 450/4	Demand and trends of industrial and technological information in developed and developing countries by S.M. Patil
ID/WG. 450/5	Towards a European infrastructure for technology transfer by Hanne Eriksen
ID/WG. 450/6	A new concept of network: The IBINET project by Enrique Melrose
ID/WG. 450/7	Alternative options for information transfer to industry by J.R.P. Alvarez-Ossorio
ID/WG. 450/8	Perspectives on information delivery by F.L. Haynes
ID/WG. 450/9	Alternative means of information dissemination by Lajos Janszky
ID/WG. 450/10	Users of industrial information and their needs by Renald Lafond
ID/WG. 450/11	Case study on the different categories of technological information users' needs and sectoral information needs. Emphasis on the experiences in the Republic of Korea by Sang Joon Hahn and Ho-Il Lee

ID/WG. 450/12	Analysis of different categories of industrial and technological information users' needs as well as sectoral information needs by E.M. Nqaiza and A.H. Senyaqwa
ID/WG. 450/13	Role of INTIB by UNIDO Secretariat
ID/WG. 450/14	INTIB future work - a need for an international industrial information programme by Adam Wysocki
CRP. 1	Parts of chapters 1, 2, 3, 5, and 6 from the report "Towards a European Infrastructure for Technology Transfer" submitted by the Danish Invention Centre, Technological Institute to the Commission of the European Communities.
CRP. 2	The IBINET Project Presentation - Revised version March 1984